

Fig. 1. Examples of Document Hyperlinks

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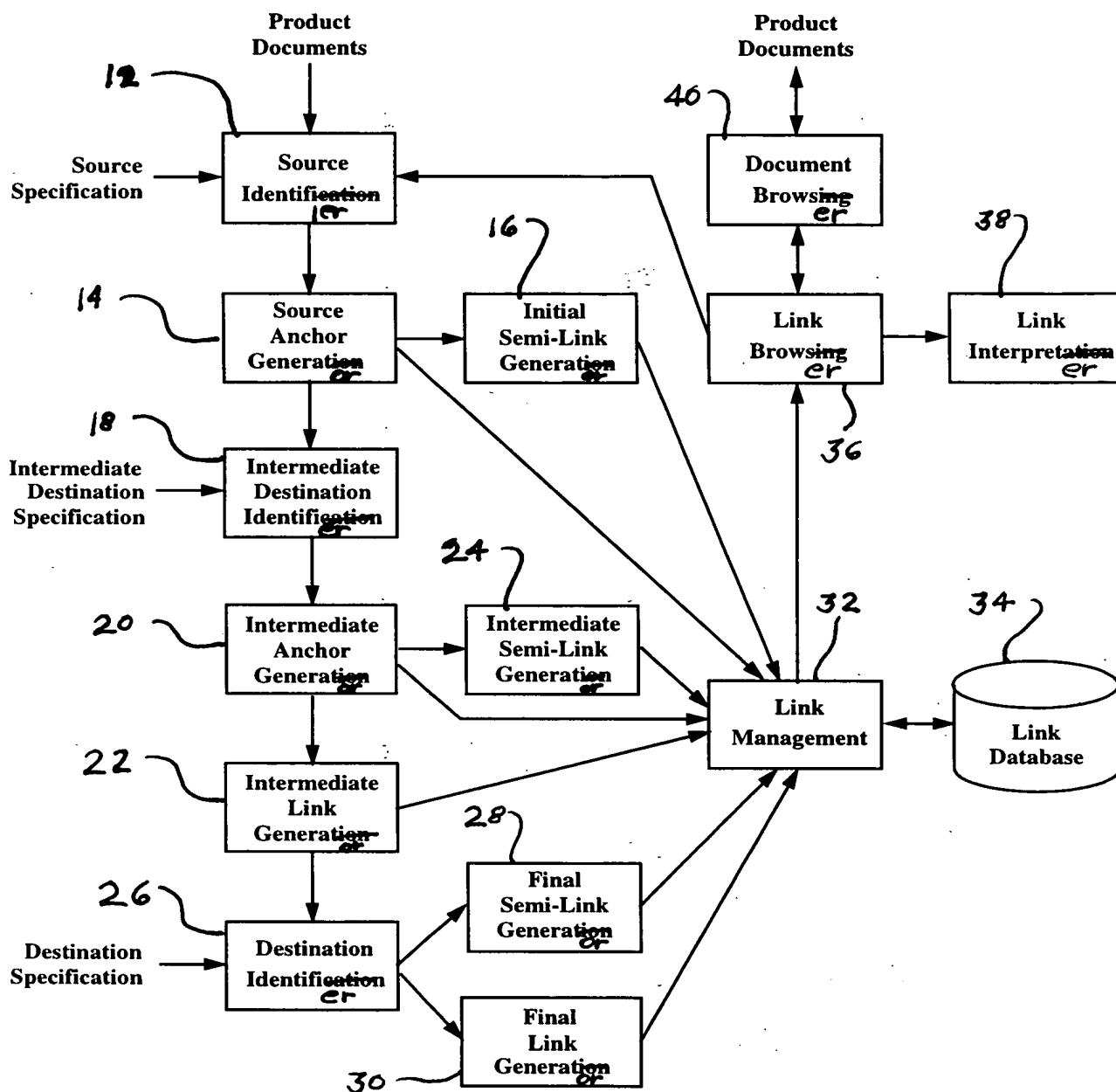


Fig. 2. Generalized Hyperlinking System

source <label> : <description>

- document
 - <list of document references>
- end
- pattern
 - <list of pattern specifications>
- end
- context
 - <list of context specifications>
- end
- anchor
 - <list of anchor specifications>
- end
- link
 - <list of link specifications>
- end

end

Fig. 3. Source Specification

<pattern specification> ::= <sequence of pattern expressions>
 <pattern expression> ::= <pattern term> | <pattern assignment>
 <pattern term> ::= <subpattern> | <subpattern extraction>
 <subpattern extraction> ::= "/" <subpattern> "/"
 <pattern assignment> ::= <new variable> "=" <pattern term> |
 "{" <pattern term> "/" <new variable> "}"
 <subpattern> ::= "<sequence of characters>" |
 "[" <subset of characters> "]" <number of repetitions> |
 "^" <subset of characters> "]" <number of repetitions>
 <number of repetitions> ::= "1" | "2" | "3" | ... | "?" | "*" | "+"

Fig. 4. Pattern Specification

<context specification> ::= <context expression>
 <context expression> ::= <context term> | <context assignment>
 <context term> ::= <document object> | <variable> |
 <document object> <object relationship> <document object> |
 <document object> <object relationship> <context expression> |
 <context expression> <object relationship> <document object> |
 <context expression> <object relationship> <context expression>
 <context assignment> ::= <new variable> ":" <context term> |
 "{ " <context term> "/" <new variable> "}"
 <object relationship> ::= "contained" | "inside" | "child-of" | "descendent-of" |
 "containing" | "parent-of" | "ancestor-of" | "sibling-of"
 <document object> ::= "< <object name> >" |
 "< <object name> <attribute list> >"
 <attribute list> ::= <attribute> <attribute> ...
 <attribute> ::= <attribute name> "=" <value>

Fig. 5. Context Specification

<anchor specification> ::= <anchor structure transformation>
 <anchor structure transformation> ::= <source context> “=>” <anchor context>
 <source context> ::= <source object list>
 <source object list> ::= <source object> <source object> ...
 <source object> ::= <document object> | <object assignment> | <variable>
 <object assignment> ::= <new variable> “:” <document object> |
 “{” <document object> “/” <new variable> “}”
 <anchor context> ::= <target object list>
 <target object list> ::= <target object> <target object> ...
 <target object> ::= <new object> | <variable>

Fig. 6. Anchor Specification

<link specification> ::= <link modification list>
 <link modification list> ::= <link modification> <link modification> ...
 <link modification> ::= <anchor content modification> | <link attribute modification>
 <anchor content modification> ::= <object variable> <link operator> <link value> “;”
 <link attribute modification> ::= <link attribute> <link operator> <link value> “;”
 <link attribute> ::= <object variable> “.” <attribute name>
 <link operator> ::= “=” | “+=”
 <link value> ::= <any string> | <link record>
 <link record> ::= “{” <link assignment list> “}”
 <link assignment list> ::= <link field assignment> <link field assignment> ...
 <link field assignment> ::= <link field> “=” <link value> “;”
 <link field> ::= <link id> | <link specification label> | <link description> |
 <link category> | <link type> | <link subtype> | <destination type> |
 <destination reference> | <parameter list>
 <destination reference> ::= <object id> | <object path> | <script>
 <parameter list> ::= <parameter> <parameter> ...

Fig. 7. Link Specification

source S101: "KKS numbers"

```
document
  31.sgm;
end
pattern
  p = "MB"[A-Z][0-9]2[A-Z]2[0-9]3;
end
context
  <AnyDocX><ParaX, ParaX2, ParaX3, ParaX4, ParaX5>p</></>;
end
anchor
  p => { <KKSNum Name=unique-name("NA")>p</> / a };
end
link
  a.Linkend += { link type = "Schematic Diagram";
                 destination reference = p;  }
end
end
```

Fig. 8. Example of Source Specification

intermediate <label> : <description>

```
    source
      <list of source and intermediate destination labels>
    end
    document
      <list of document references>
    end
    pattern
      <list of pattern specifications>
    end
    context
      <list of context specifications>
    end
    anchor
      <list of anchor specifications>
    end
    link
      <list of link specifications>
    end
end
```

Fig. 9. Intermediate Destination Specification

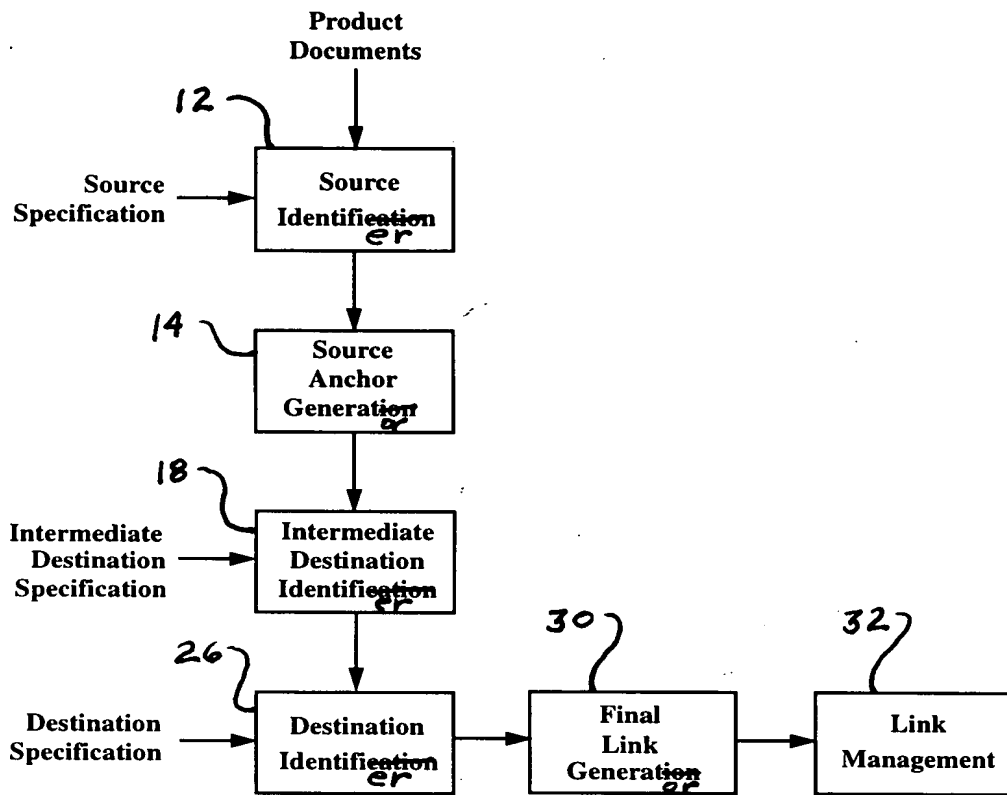


Fig. 11. Static Hyperlinking

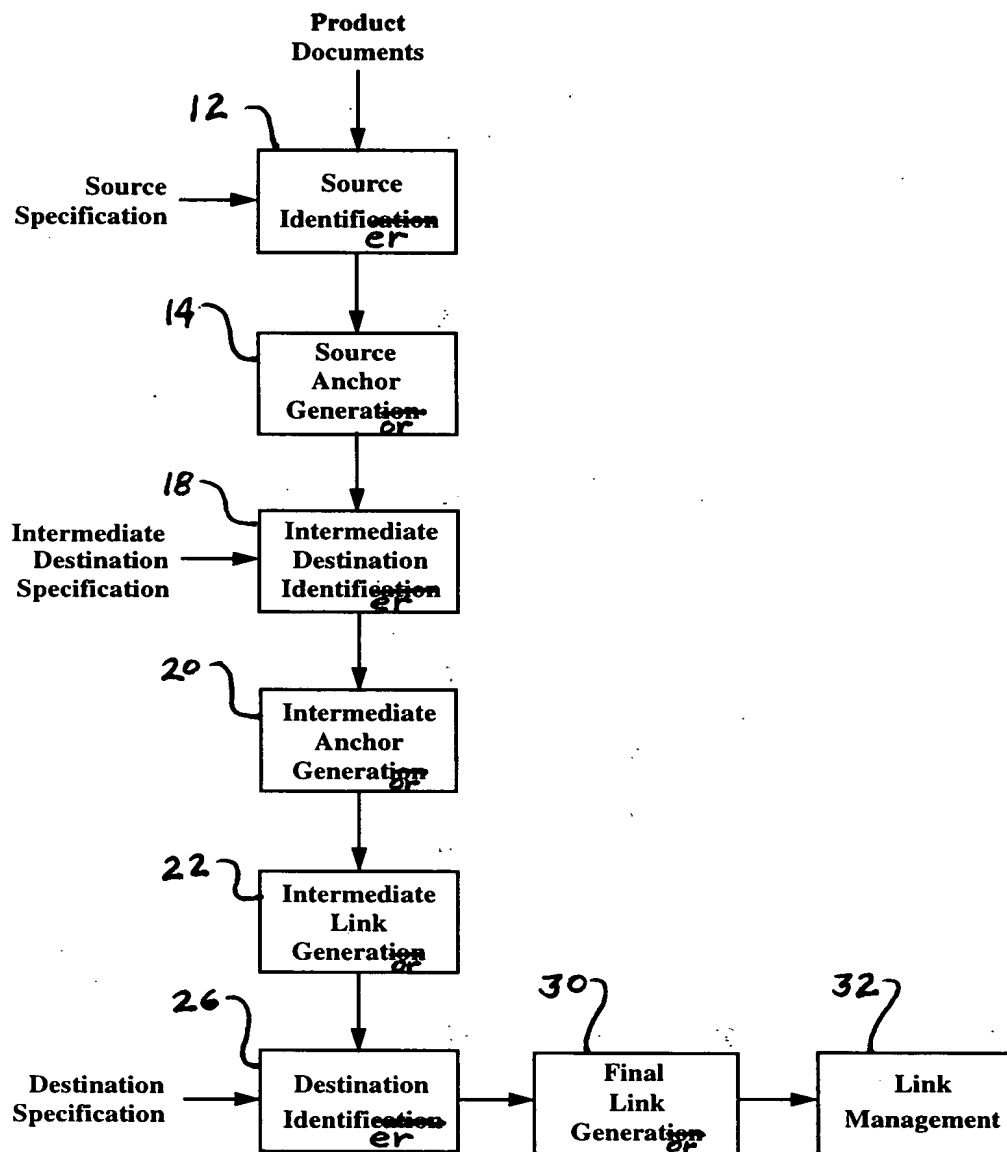


Fig. 12. Static Hyperlinking with Intermediate Links

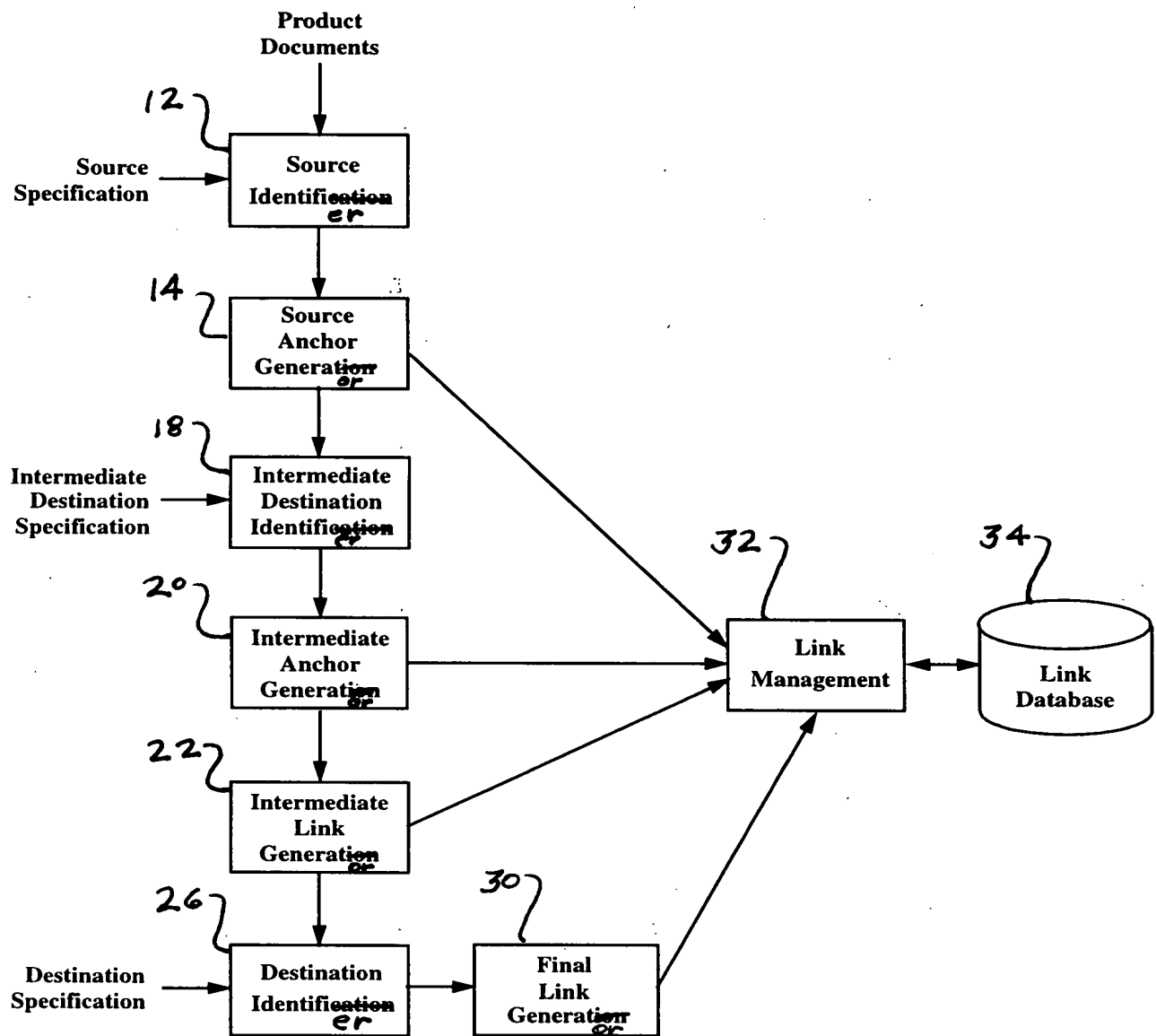


Fig. 13. Incremental Hyperlinking

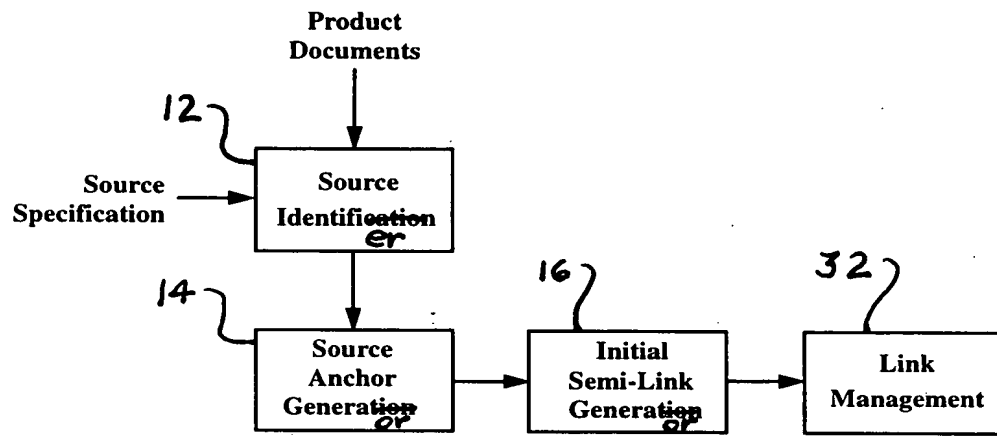


Fig. 14. Source-Level Partial Hyperlinking

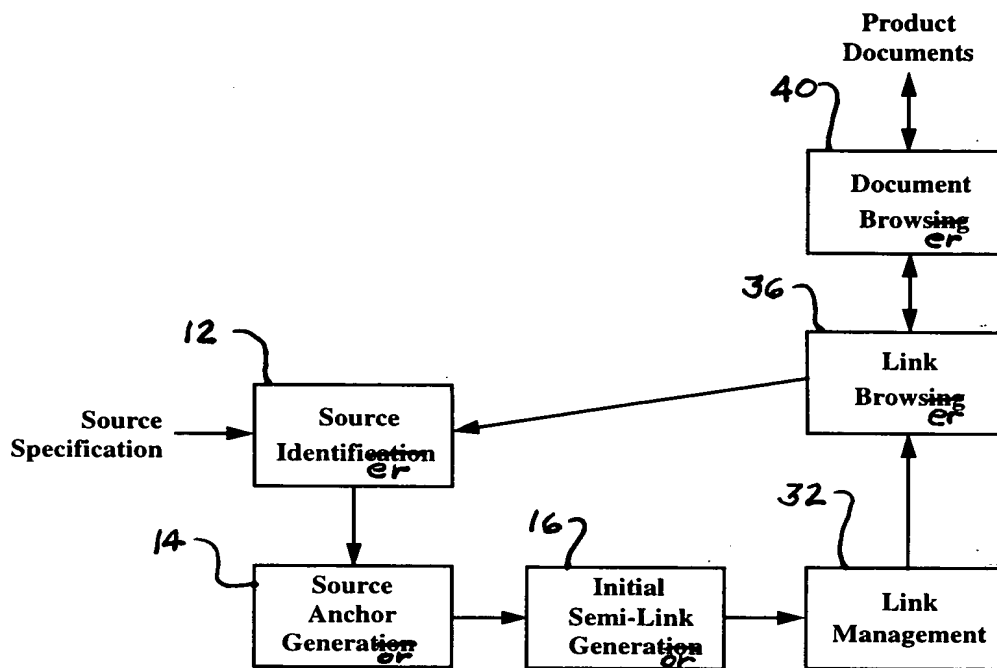


Fig. 15. Source-Level Dynamic Hyperlinking